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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/525,692

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Sergey Vladimirovich Antonenko

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10/23/2006

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EXAMINER

MAYLE, EDWARD J

ART UNIT

PAPER NUMBER

3644

DATE MAILED: 10/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/525,692

Applicant(s)

ANTONENKO ET AL.

Examiner

Edward J. Mayle

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on application of 02/22/2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-16, 18 and 19 is/are rejected.
- 7) ☒ Claim(s) 10, 17 and 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 06/03/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 4, and 5-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claim 4 recites the limitation "the retaining aerodynamic force" in line 2 (emphasis added). There is insufficient antecedent basis for this limitation in the claim.
4. Claim 4 recites the limitation "the axis positioned at an angle" in line 3. There is insufficient antecedent basis for this limitation in the claim. Is the axis aligned with the object to be gripped? For the purposes of this examination, the Examiner assumes that a rotation about any axis is sufficient.
5. Claim 5 recites the limitation "the thermal energy" in line 2. There is insufficient antecedent basis for this limitation in the claim.
6. Claim 6 recites the limitation "the electromagnetic energy" in line 2. There is insufficient antecedent basis for this limitation in the claim.
7. Claim 7 recites the limitation "the mechanical energy" in line 2. There is insufficient antecedent basis for this limitation in the claim.
8. Claim 8 recites the limitation "the aerodynamic energy" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

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9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-4, 7-9, 11-16, and 18-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Everhart (US 2,898,060).

11. Regarding Claim 1: Everhart discloses a method for gripping the refueling hose of a refueling aircraft, comprising the steps of: detaching the refueling drogue (10, Fig. 1) while maintaining a mechanical link (wire 11, Fig. 1 is “adapted to be wound on a reel mounted in a vehicle”, Column 1, lines 50-55), the detachment of the drogue inherently happens before the receiver aircraft engages the drogue; the drogue is retained at a distance from the refueling aircraft (this is inherent – if it were not retained then no fuel would flow to the receiver aircraft), this retaining step is executed at least up until engagement by generating a retaining force on the detachable drogue, the force being directed and angled to the refueling hose (Column 1, lines 24-26: “Generally a device is attached to the trailing free end to create a drag and keep the trailing member in taut extension.” The drag force and the weight of the drogue inherently make the refueling hose extend at a downward angle). It is inherent that the receiver aircraft (the gripping object) will mechanically engage the refueling drogue to offload fuel by spatially moving a refueling probe into the refueling drogue. Before the engagement occurs, the drogue is partially stabilized in its angled position (Column 1, lines 31-33: “to provide a

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gyroscopic means for damping out erratic trailing member gyrations”) by rotating a part to provide it with its own angular momentum (Column 2, lines 24-28).

12. Regarding Claim 2: The drogue of Everhart is “detached” when the wire 11 is unwound from the reel mounted on the refueling aircraft (Column 1, lines 50-55).

Before the drogue is “detached” (i.e., the hose is payed out from the reel), the drogue is already exposed to the slipstream, this will inherently cause the gyroscopic means to rotate. In other words, the hose does not have to be payed out from the reel in order for the gyroscopic means to function.

13. Regarding Claim 3: the gyroscopic means rotates after the refueling drogue is payed out from the reel of the refueling aircraft (Column 2, lines 24-28).

14. Regarding Claim 4: As noted in the rejection for Claim 1 above, the retaining force is due to the aerodynamic drag on the hose / drogue as well as the weight of the hose / drogue. There is at least one detachable part (the gyroscopic means of the drogue) that rotates about an axis which helps to define the retaining force. (without the gyroscopic means, “turbulent fluid pressures ... produce erratic gyrations” on the hose, Column 1, lines 26-28)

15. Regarding Claims 7 and 8: The gyroscopic means is rotated using mechanical energy (kinetic energy of the air is turned into rotational energy: Column 2, lines 26 – “fluid moving past the fins causes member 14 to rotate.”)

16. Regarding Claim 9: According to Newton’s third law, for all forces there are equal and opposite reactive forces. The drag force (from the air on the hose) is opposed by an equal reactive force (from the refueling aircraft on the hose).

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17. Regarding Claim 11: The rotating part of the drogue is always at least partially oriented relative to the refueling hose. In other words, no matter what the orientation of the rotating part is, it can always be described by its relative position (linear and angular) from the rest of the hose.

18. Regarding Claim 12: The rotating part is constantly “oriented.” This language is so broad that it is basically meaningless.

19. Regarding Claim 13: A rotation is inherently a way to orient an object. Therefore, this claim is tautological.

20. Regarding Claim 14: The drag force orients the hose and the attached drogue. Any force is inherently “directed at an angle.” The angle could be from zero to 180 degrees because the claim is so broad.

21. Regarding Claim 15: When the gyroscopic means is rotating, the orienting force (drag force causing a tension in the fuel line) is reduced (without the gyroscopic means the turbulent fluctuation of the hose cause the force to spike such that it “may twist and break it.”, Column 1, lines 28-29.)

22. Regarding Claim 16: The force is a drag force (which is an aerodynamic force). All drag forces are inherently directed at an angle.

23. Regarding Claims 18 and 19: the rotating part is *a/ways* at some orientation, including the time before it is detached or after it is detached.

Allowable Subject Matter

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24. Claims 10, and ^{and 20}₁₇ are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

25. Claims 5 and 6 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

26. Regarding Claims 5 & 6: The gyroscopic means of Everhart is expressly driven via air moving past fins; there would be no motivation to use an alternate power source.

27. Regarding Claims 10 & 17: There would be no motivation to put an aerostat on the invention of Everhart.

28. Regarding Claim 20: When the receiving aircraft engages the fuel drogue of Everhart, the gyroscopic means would still function by air passing over the fins; there is no motivation to reduce the angular velocity of the gyroscopic means after engagement.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward J. Mayle whose telephone number is (571)-272-8969. The examiner can normally be reached on Mon-Fri 0830-1700.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Teri Luu can be reached on (571)-272-7045. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Edward J. Mayle



ROBERT P. SWIATEK
PRIMARY EXAMINER
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